

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 457 234 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
01.12.2004 Bulletin 2004/49

(51) Int Cl.7: **A61N 5/06**

(43) Date of publication A2:
15.09.2004 Bulletin 2004/38

(21) Application number: **04011578.4**

(22) Date of filing: **20.03.2001**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

(71) Applicant: **Photo Therapeutics Limited**
Altrincham Cheshire WA14 1EP (GB)

(72) Inventor: **Whitehurst, Colin**
New Road, Altrincham, Cheshire WA14 1EP (GB)

(30) Priority: **23.03.2000 GB 0007085**
17.04.2000 GB 0009491
19.12.2000 GB 0030974

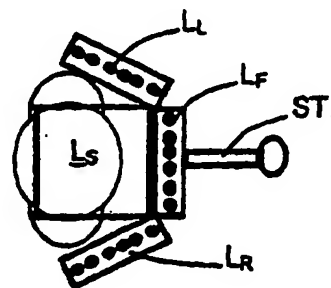
(74) Representative:
Cross, James Peter Archibald et al
R.G.C. Jenkins & Co.,
26 Caxton Street
London SW1H 0RJ (GB)

(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
01302586.1 / 1 138 349

(54) **Therapeutic light source and method**

(57) A therapeutic light source comprises rigid arrays of LED's (L_F , L_L , L_R) movably connected together, and cooled by forced air convection. The output intensity of the arrays is at least $10\text{mW}/\text{cm}^2$ with a spatial intensity fluctuation of 10% or less in the treatment field. The emission spectra of the LED's may be substantially limited to the range 400 to 430 nm, or 590 to 640 nm. The light source may be used for cosmetic treatment, such as skin rejuvenation, wrinkle removal and/or biostimulation.

Fig. 20a



EP 1 457 234 A3



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 04 01 1578 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (InLCI.7)
X	US 5 634 711 A (KAYSER ROY ET AL) 3 June 1997 (1997-06-03) * column 2, line 10 - line 27 * * column 3, line 38 - column 4, line 49 * * column 9, line 26 - line 30; claims 1,6,7,14,15,18; figures 1,7 *	5-7,9, 17-19	A61N5/06
X	WO 93/21842 A (QUADRA LOGIC TECH INC ;AMERICAN CYANAMID CO (US)) 11 November 1993 (1993-11-11)	5-7	
Y	* page 8, line 26 - page 9, line 7 * * page 10, line 8 - line 24 * * page 11, line 12 - line 25 * * page 16, line 28 - page 17, line 3 * * page 18, line 4 - page 19, line 32; claims 1-3; figures 5,10-12,14 *	1-4,8,9, 14-19	
Y	WO 93/09847 A (LARSEN ERIK) 27 May 1993 (1993-05-27) * page 4, line 16 - page 5, line 15 * * page 6, line 27 - page 7, line 7; claims 1-5,8; figures 1,2 *	1-4, 14-19	TECHNICAL FIELDS SEARCHED (InLCI.7)
	-/--		A61N
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search:</p> <p>see sheet C</p>			
Place of search		Date of completion of the search	Examiner
Munich		30 September 2004	Rick, K
CATEGORY OF CITED DOCUMENTS			
<p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.02 (P0407)



European Patent
Office

INCOMPLETE SEARCH
SHEET C

Application Number
EP 04 01 1578

Claim(s) searched completely:
1-19

Claim(s) not searched:
20-23

Reason for the limitation of the search (non-patentable invention(s)):

Article 52 (4) EPC - Method for treatment of the human or animal body by
therapy



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 04 01 1578

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
Y	DE 88 13 852 U (NORMEDICA AG) 29 December 1988 (1988-12-29) * page 5, line 11 - line 25 * * page 6, line 18 - line 23 * * page 7, line 21 - line 33 *	1-4	
Y	US 5 278 432 A (IGNATIUS RONALD W ET AL) 11 January 1994 (1994-01-11) * column 2, line 3 - line 12 * * column 3, line 38 - column 4, line 20 * * column 5, line 4 - line 12 *	8,9	
Y	WO 00/02491 A (HARTH YORAM ; KORMAN AVNER (IL)) 20 January 2000 (2000-01-20) * page 4, line 8 - line 11 * * page 4, line 29 - line 32 * * page 6, line 3 - line 6 * * page 12, line 17 - line 23; claim 12 *	15-19	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Y	WO 95/26217 A (MAEF SRL ; MANUNTA ANTONIO (IT); SELLA GIANNI (IT); E D M DI GIUSEPPIN) 5 October 1995 (1995-10-05) * page 3, line 1 - line 19 * * page 4, line 14 - page 5, line 26; claims 12-16 *	15-19	
A	US 5 913 883 A (BRIGHTON ARRIANNA ET AL) 22 June 1999 (1999-06-22) * column 2, line 3 - line 60 * * column 3, line 8 - line 18 * * column 3, line 44 - line 52 *	1-4,7-19	
A	DE 41 13 803 A (IWG EASTMED MEDIZINTECHNIK GMB) 29 October 1992 (1992-10-29) * column 1, line 64 - column 2, line 7 * * column 2, line 57 - line 64; claim 3; figure 2 *	13	



European Patent
Office

Application Number
EP 04 01 1578

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



European Patent
Office

LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 04 01 1578

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4 and 7-19 (if dependent on claim 1)

A light source for therapy comprising a first, second and third rigid array of light emitting diodes movably connected to the first array.

2. claims: 5,6 and 7-19 (if dependent on claim 5)

A therapeutic light source comprising an array of light emitting diodes with an output intensity of at least 10 mW/cm² and a spatial intensity fluctuation of 10% or less.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 01 1578

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-09-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5634711	A	03-06-1997	US 5420768 A	30-05-1995
			AU 7737894 A	03-04-1995
			CA 2149339 A1	23-03-1995
			WO 9507731 A1	23-03-1995
WO 9321842	A	11-11-1993	AU 3786093 A	29-11-1993
			CN 1079673 A	22-12-1993
			MX 9302240 A1	01-10-1993
			WO 9321842 A1	11-11-1993
WO 9309847	A	27-05-1993	CH 685148 A5	13-04-1995
			AT 176874 T	15-03-1999
			AU 2929492 A	15-06-1993
			CA 2112132 A1	27-05-1993
			WO 9309847 A1	27-05-1993
			DE 59209638 D1	01-04-1999
			DK 568666 T3	24-09-2001
			EP 0568666 A1	10-11-1993
			GR 3030199 T3	31-08-1999
DE 8813852	U	29-12-1988	DE 8813852 U1	29-12-1988
US 5278432	A	11-01-1994	NONE	
WO 0002491	A	20-01-2000	AU 4645099 A	01-02-2000
			EP 1100366 A1	23-05-2001
			WO 0002491 A1	20-01-2000
			JP 2002526128 T	20-08-2002
			US 2001023363 A1	20-09-2001
WO 9526217	A	05-10-1995	IT T0940231 A1	29-09-1995
			AU 2255795 A	17-10-1995
			WO 9526217 A1	05-10-1995
US 5913883	A	22-06-1999	NONE	
DE 4113803	A	29-10-1992	DE 4113803 A1	29-10-1992

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82